Planetary Science Decadal Survey 2009-2011

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Mars Exploration Program Analysis Group
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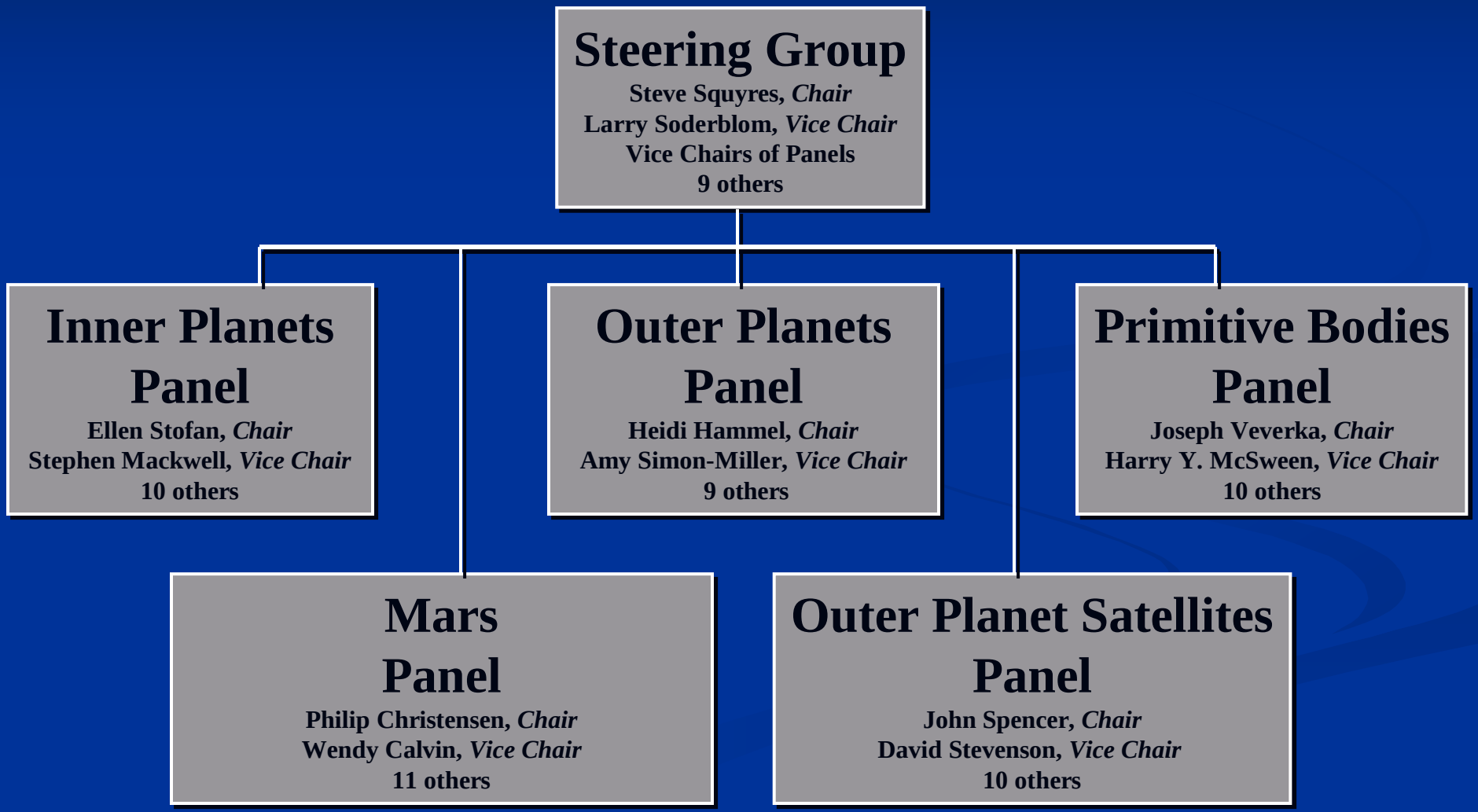
What will the Decadal Survey Address?

- **Major Tasks:**
  - Overview of planetary science and current state of knowledge
  - Inventory of the key scientific questions
  - Assessment of NSF-funded infrastructure
  - Recommendations on program balance:
    - Mix of mission targets
    - Mix of mission sizes
    - Mix of research activities
  - Prioritized recommendations for New Frontiers and flagship missions for the next decade
  - Opportunities for human exploration to address key scientific questions
  - Recommendations for NASA-funded research activities
  - Recommendations for technology development

- **Scope**
  - Ground- and space-based planetary science
  - Astrobiology

Organization of the Decadal Survey



Mars Panel

- Philip Christensen, Arizona State University, *Chair*
- Wendy M. Calvin, University of Nevada, Reno, *Vice Chair*

- Raymond Arvidson, Washington University, St. Louis
- Bobby Braun, Georgian Institute of Technology
- Glen Cunningham, Jet Propulsion Laboratory, retired
- David Des Marais, NASA Ames Research Center
- Linda Elkins-Tanton, Massachusetts Institute of Technology
- Francois Forget, Institut Pierre Simon Laplace
- John Grotzinger, California Institute of Technology
- Penny King, University of New Mexico
- Paul Mahaffy, NASA Goddard Space Flight Center
- Lisa Pratt, University of Indiana

- One Additional International Participant (to be appointed)

Overall Schedule 2008-2011

2008

4th Quarter Informal request received, NRC approves initiation,
Formal request received, Proposal to NASA.

2009

1st Quarter Funding received, Chair identified, Chair and vice chair appointed

2nd Quarter Steering Group appointed, Panels Appointed

3rd Quarter Meetings of the Steering Group and Panels begin

4th Quarter Panels' period of peak active, Proposal to NSF

2010

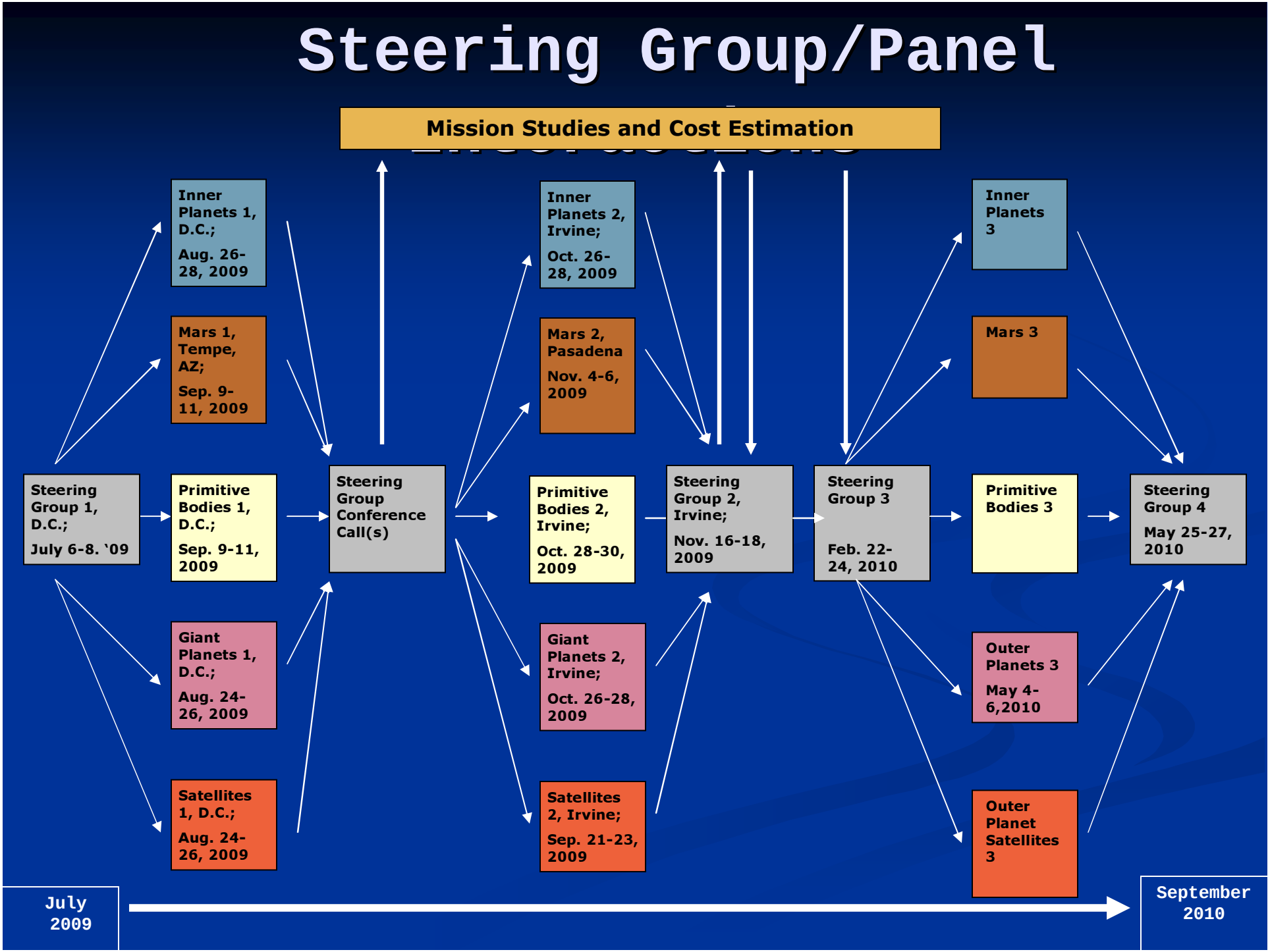
1st-2nd Quarter Final Panel meetings, Panel reports finalized

2nd-3rd Quarter Prioritization and drafting of survey report

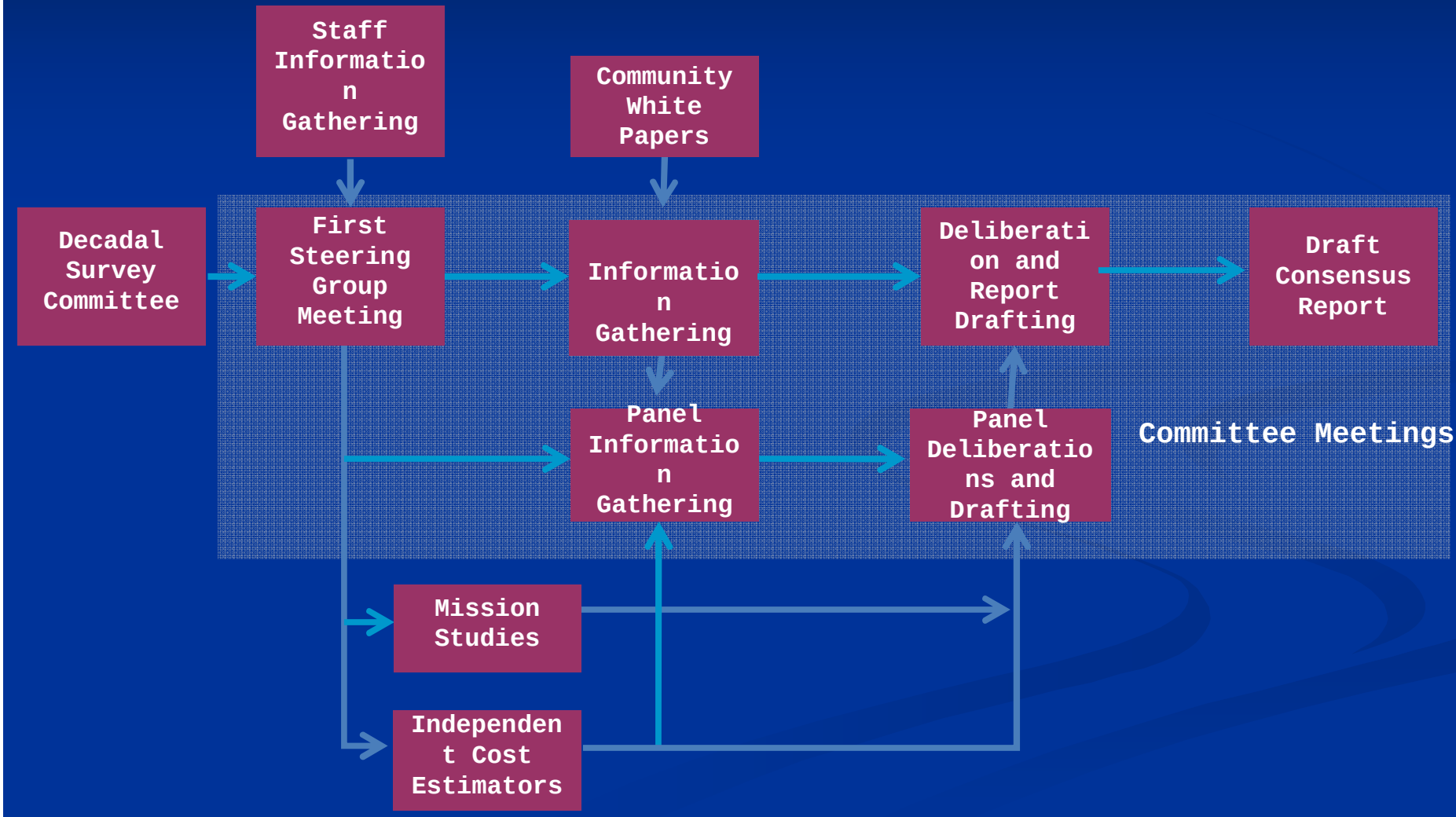
Meeting Schedule

Steering Group	Inner Planets	Mars	Primitive Bodies	Outer Planets	Outer Planets Satellites
6-8 July Washington D.C.					
16-18 November Irvine California	26-28 August Washington D.C.	9-11 September Tempe Arizona	9-11 September Washington D.C.	24-26 August Washington D.C.	24-26 August Washington D.C.
22-24 February Arizona or California	26-28 October Irvine California	4-6 November Pasadena California	28-30 October Irvine California	26-28 October Irvine California	21-23 September Irvine California
25-27 May Washington D.C.	TBD	TBD	TBD	4-6 May Boston? Massachusetts	TBD

Steering Group/Panel



Steering Group/Panels Workflow



Community Interactions

Broad community input is a defining feature of a decadal survey

- Town hall and open meetings were held as early as possible in the process of establishing the survey committee (e.g., DPS, AGU and VEXAG, MEPAG, OPAG, RAS, LPSC and CAPTEM)
- Future outreach sessions are planned for the upcoming meetings
- White papers submission mechanism active on decadal survey web site (http://www7.nationalacademies.org/ssb/SSEdecadal2011.html)
- White paper notice-of-intent mechanism active on LPI web site (http://www.lpi.usra.edu/decadal/)
- Steering committee and panel meetings will be webcast and archived

Examples of Recent and Future Outreach Events

- NAC/PSS, 10 July, Washington, D.C., Presentation
- OPAG, 14 July, Columbia, Maryland, Presentation
- NLSI/LEAG, 22-23 July, Moffett Field, California, Presentation
- MEPAG, 30 July, Providence, Rhode Island, Presentation
- Augustine Commission, 5 August, Washington, D.C., Presentation
- EPSC, 14 September, Potsdam, Germany, Presentation
- DPS, 4-9 October, Fajardo, Puerto Rico, Plenary Session and Panel-specific Workshops
- AGU, 14-18 December, San Francisco, California,

Evaluation of Candidate Missions

- Compared to previous decadal surveys, this one will place much greater emphasis on evaluation of the technical maturity and probable costs of candidate missions.
- The Panels and the Steering Group include members who are expert in engineering, project management, and cost estimation.
- Resources are available to do moderate-fidelity (and conservative!) cost estimates for a limited number of high-priority candidate missions.
- The objective is to produce a realistic (i.e., not heavily over-subscribed) set of candidate missions for NASA to carry out in the coming decade.

Assuring Fiscal and Technical Realism

A lack of technical and fiscal realism has been a major weakness of past decadal surveys (in planetary science and other disciplines). The decadal survey has adopted a twin-track approach to crafting more robust mission priorities.

Technical support in the form of mission studies will be conducted by the following groups:

- **JPL Team X and Rapid Mission Architecture team.**
- **APL ACE lab**
- **GSFC Integrated Design Cente (Mission**

The NRC will procure independent cost estimates from an appropriately qualified organization.

Four qualified companies have responded to an RFI; the winning contractor will be selected shortly

Summary

- The decadal survey process is aimed at articulating a program for the coming decade that represents as fully as possible the true consensus view of the US planetary science community
- The distinguishing features of the decadal survey process are inclusiveness and transparency
- In contrast to past decadal surveys, this one will place a strong emphasis on cost realism
- The process is moving forward briskly. White paper inputs from the community are needed by September 15

http://www7.nationalacademies.org/ssb/SSEdecadal2011.html)

Extra

New Frontiers in the Solar System

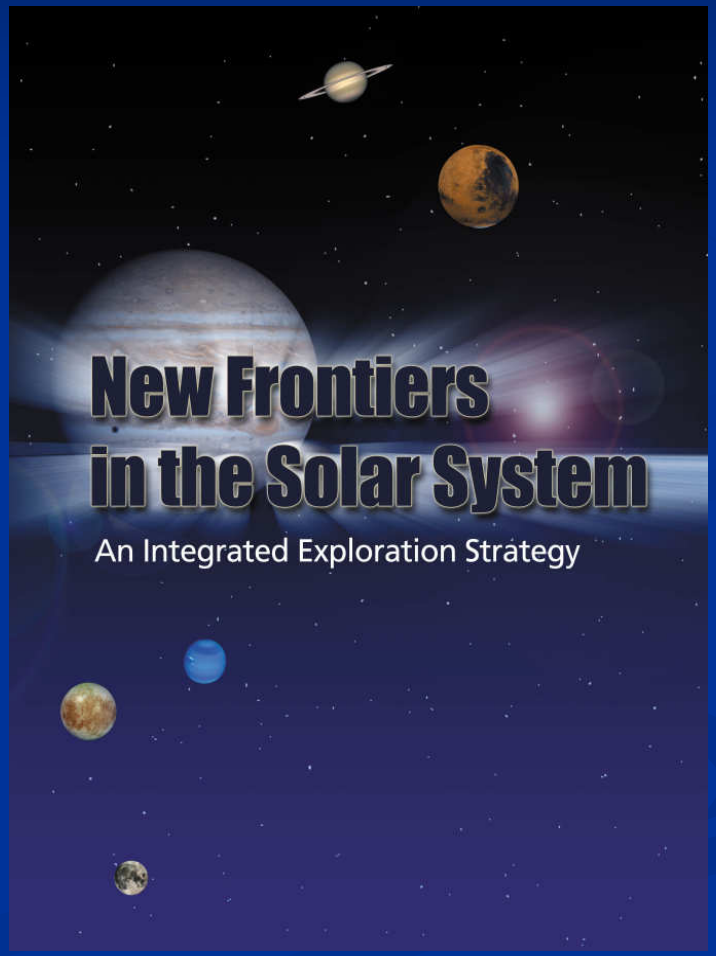
Origin NASA request

Purpose To define for solar system exploration a decadal science and mission strategy, akin to those drafted by the astronomy and astrophysics communities for the last 40 years

Study Group Steering group of 15 supported by 45 others on six panels (plus 200+ authors of white papers)

Study period 7/01 to 7/02

Final Report Issued 2003



Steering Group

- Steven W. Squyres, Cornell University, *Chair*
- Laurence A. Soderblom, U.S. Geological Survey, *Vice Chair*
- Wendy M. Calvin, University of Nevada, Reno
- Dale Cruikshank, NASA Ames Research Center
- Pascale Ehrenfreund, George Washington University and Leiden Institute of Chemistry
- G. Scott Hubbard, Stanford University
- Wesley T. Huntress, Jr., Carnegie Institution of Washington
- Margaret G. Kivelson, University of California, Los Angeles
- B. Gentry Lee, Jet Propulsion Laboratory
- Jane Luu, Massachusetts Institute of Technology, Lincoln Laboratory
- Stephen Mackwell, Lunar and Planetary Institute
- Ralph L. McNutt, Jr., Johns Hopkins University, Applied Physics Laboratory
- Harry Y. McSween, Jr., University of Tennessee, Knoxville
- Amy Simon-Miller, NASA Goddard Space Flight Center
- David J. Stevenson, California Institute of Technology
- A. Thomas Young, Lockheed Martin Corporation (Retired)

White Paper Submission

- White papers may be submitted before September 15, 2009, via the decadal survey web site.
- White papers may not be more than 7 pages in length.
- A cover page should include the primary author's name and a list of co-authors.
- Use a 12-pt font with 1-inch margins.
- Only Word (.doc) and Acrobat (.pdf) formats will be accepted.
- Multiple authorship that accurately reflects a consensus among many individuals is strongly encouraged.
- Everyone in the planetary science community is encouraged to author white papers; the only exception is the decadal survey panel chairs and steering committee